

REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested.

Claims 7-10 are presently active in this case, Claims 1-6 and 11-22 having been previously withdrawn from consideration as being directed to a non-elected invention.

In the outstanding Office Action, Claims 7 and 10 were rejected under 35 USC §102(e) as being anticipated by Hwang et al (PN 6,797,645) and Claims 8 and 9 were objected to as being dependent upon a rejected base claim, but otherwise allowable if rewritten in independent form.

Applicants acknowledge with appreciation the indication of allowable subject matter. However, since Applicants consider that Claims 7 and 10 also patentably define over the prior art, Claims 8-9 have presently been maintained in dependent form.

Briefly recapitulating, Claim 7 defines a method of manufacturing a semiconductor device, including forming a metal oxide film on a substrate; applying a heat treatment to the metal oxide film under temperature falling within a range of between 700°C and 900°C; adding nitrogen to the metal oxide film **after the heat treatment** by using nitrogen under an excited state so as to obtain a gate insulating film consisting of a metal oxynitride film containing a metal-oxygen-nitrogen bond chain; and forming a gate electrode on the gate insulating film.

According to the claimed invention, the heat treatment must be applied before the film is exposed to the excited nitrogen. As disclosed at page 25, lines 3 to 9 of Applicants' specification, "the embodiment of the present invention has made it possible to form a metal-oxygen-nitrogen bond chain and/or a silicon-oxygen-nitrogen bond chain each having a sufficiently high thermal stability by applying a heat treatment to the film at 700 °C to 900 °C before the film is exposed to the excited nitrogen." As disclosed at page 23, lines 2-7 of Applicants' specification, "the metal oxynitride film or the nitrated metal silicate film

exhibiting the characteristics described above can be obtained by, for example, applying a heat treatment at 700 °C to 900 °C to a metal oxide film or a metal silicate film, followed by adding nitrogen by using nitrogen under an excited state.”

In contrast to the claimed invention, Hwang et al. neither discloses nor suggests “adding nitrogen to the metal oxide film **after the heat treatment** by using nitrogen under an excited state”. At column .2, line 8, Hwang et al. state “the nitridation can be performed by heat-treating,...”. Further, in EXAMPLE 1 at column 2, Hwang et al. further state “nitrogen component is incorporated into the ZrO₂ film **via heat-treatment** for 60 sec at 700°C”. Nitrogen is not incorporated into the film after the heat treatment. Thus, according to the teachings of Hwang et al., nitrogen is incorporated into the film **at the same time** as the heat treatment or **before the heat treatment**.

This is clearly different from the invention defined by pending Claim 7. As above discussed, Applicants’ invention has made it possible to form a metal-oxygen-nitrogen bond chain and/or a silicon-oxygen-nitrogen bond chain each having a sufficiently high thermal stability by applying a heat treatment to the film at 700 °C to 900 °C **before the film is exposed to the excited nitrogen**.

It is impossible to form a metal-oxygen-nitrogen bond chain even if nitrogen is added to the film **at the same time** as the heat treatment or **before the heat treatment**. In Hwang et al., nitrogen is not added after the heat treatment, and thus a metal-oxygen-nitrogen bond chain is not formed in the film.

Therefore, it is respectfully submitted that Hwang et al. clearly does not disclose or obviate the subject matter of Claim 7, and further , that Hwang et al. likewise fails to disclose or obviate the subject matter of Claim 10 even if Hwang et al. discloses that the metal contained in the gate insulating film includes at least one element selected from the group consisting of Zr, Hf, Ti and lanthanoide metal.

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Consequently, in view of the above comments, it is respectfully submitted that each of Claims 7-10 patentably defines over Hwang et al., and the outstanding rejection on the merits is traversed. No further issues are thus believed to be outstanding, and the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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